

**Abstract of Disclosure**

The present invention discloses a MIMO system and method, which is suitable for MC-CDMA communication system with multiple paths to obtain the spectrum efficiency and gain simultaneously. The transceiver includes steps of simultaneously transferring a transmitting data to a plurality of parallel data streams, and space time block encoding each data. Then, spreading the encoded data streams with a pre-designed space-path spreading code, and transmitting data with the transmit antennas through a multiple paths. Finally, at each receiver, despreading received data by the matched filters, and separating mutually interfering signal with a linear combiner and a BLAST detector to obtain the diversity gain.